

**START**



**MICROFILMED 1997**

**Penn State University  
Libraries**

**University Park, PA 16802-1805**

**USAIN STATE AND  
LOCAL LITERATURE  
PRESERVATION PROJECT:  
PENNSYLVANIA**

**Pattee Library**

**Funded by the**

**NATIONAL ENDOWMENT  
FOR THE HUMANITIES**

**Reproductions may not be made  
without permission from  
The Pennsylvania State University Libraries**

**Pennsylvania  
Agricultural  
Literature on  
Microfilm**



# **COPYRIGHT STATEMENT**

**The copyright law of the United States - Title 17, United States Code - concerns the making of photocopies or other reproductions of copyrighted material.**

**Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or other reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.**

**This institution reserves the right to refuse to accept a copy order if, in its judgement, fulfillment of the order would involve violation of the copyright law.**

**Master Negative  
Storage Number**

**PSt SNPaAg030**

## **CONTENTS OF REEL 30**

- 1) Hartson, Margaret Grace**  
**A study of the influence of color on the preschool child's**  
**selection of certain cooked vegetables during the noon**  
**lunch program at the Pennsylvania State College Nursery**  
**School**  
**MNS# PSt SNPAG030.1**
  
- 2) Urgell, Providencia S.**  
**Nutritional effect of school lunch for children of pre-school age**  
**MNS# PSt SNPAG030.2**



## **CONTENTS OF REEL 30 (CONTINUED)**

- 3) O'Brien, Anne Theresa**  
**Nutritional status of nursery school children of families of**  
**medium and high income levels**  
**MNS# PSt SNP aAg030.3**
- 4) Ng, Woot Tsuen**  
**Nutritional status of nursery school children from low income**  
**families**  
**MNS# PSt SNP aAg030.4**
- 5) Alleger, Daniel Eugene**  
**A community case study of a rural resort community, Barrett**  
**Township, Monroe County, Pennsylvania, 1941**  
**MNS# PSt SNP aAg030.5**

**Author: Hartson, Margaret Grace**

**Title: A study of the influence of color on the preschool  
child's selection of certain cooked vegetables during  
the noon lunch program at the Pennsylvania State  
College Nursery School**

**Place of Publication:**

**Copyright Date: 1946**

**Master Negative Storage Number: MNS# PSt SNP aAg030.1**



<107502> \* \*OCLC\* Form:manuscript item 2 Input:BMM Edit:FMD  
 008 ENT: 971023 TYP: s DT1: 1946 DT2: LAN: eng  
 035 (OCoLC)37820683  
 037 PSt SNP aAg030.1 \$bPreservation Office, The Pennsylvania State  
 University, Pattee Library, University Park, PA 16802-1805  
 090 20 Thesis 1946m \$bHarts, MG \$cst\*7556531 \$cax+(Archival)  
 090 20 Microfilm D244 reel 30.1 \$cmc+(service copy, print master, archival  
 master)  
 100 1 Hartson, Margaret Grace.  
 245 12 A study of the influence of color on the preschool child's selection of  
 certain cooked vegetables during the noon lunch program at the  
 Pennsylvania State College Nursery School \$ba thesis \$cby Margaret G.  
 Hartson.  
 246 30 Influence of color on the preschool child's selection of certain cooked  
 vegetables.  
 260 \$c1946.  
 300 52 leaves \$bill. \$c28 cm.  
 502 Thesis (M.S.)--Pennsylvania State College.  
 504 Bibliography: leaves [40]-42.  
 533 Microfilm \$bUniversity Park, Pa. : \$cPennsylvania State University  
 \$d1997. \$e1 microfilm reel ; 35 mm. \$f(USAIN state and local literature  
 preservation project. Pennsylvania) \$f(Pennsylvania agricultural  
 literature on microfilm).  
 590 This item is temporarily out of the library during the filming process.  
 If you wish to be notified when it returns, please fill out a Personal  
 Reserve slip. The slips are available in the Rare Books Room, in the  
 Microforms Room, and at the Circulation desk.  
 590 Archival master stored at National Agricultural Library, Beltsville, MD  
 : print master stored at remote facility.  
 650 0 Child psychology.  
 650 0 Children \$xNutrition \$xPsychological aspects.  
 710 2 Pennsylvania State College. \$bNursery School.  
 830 0 USAIN state and local literature preservation project. \$pPennsylvania.  
 830 0 Pennsylvania agricultural literature on microfilm.

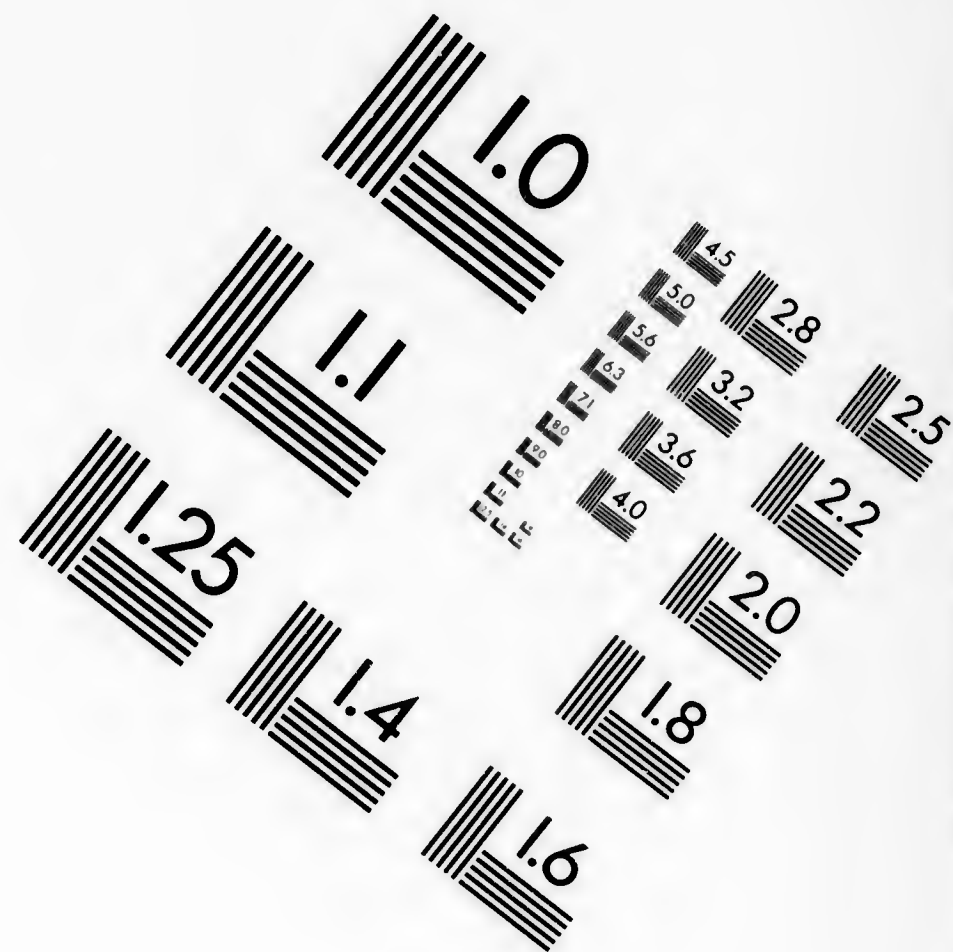
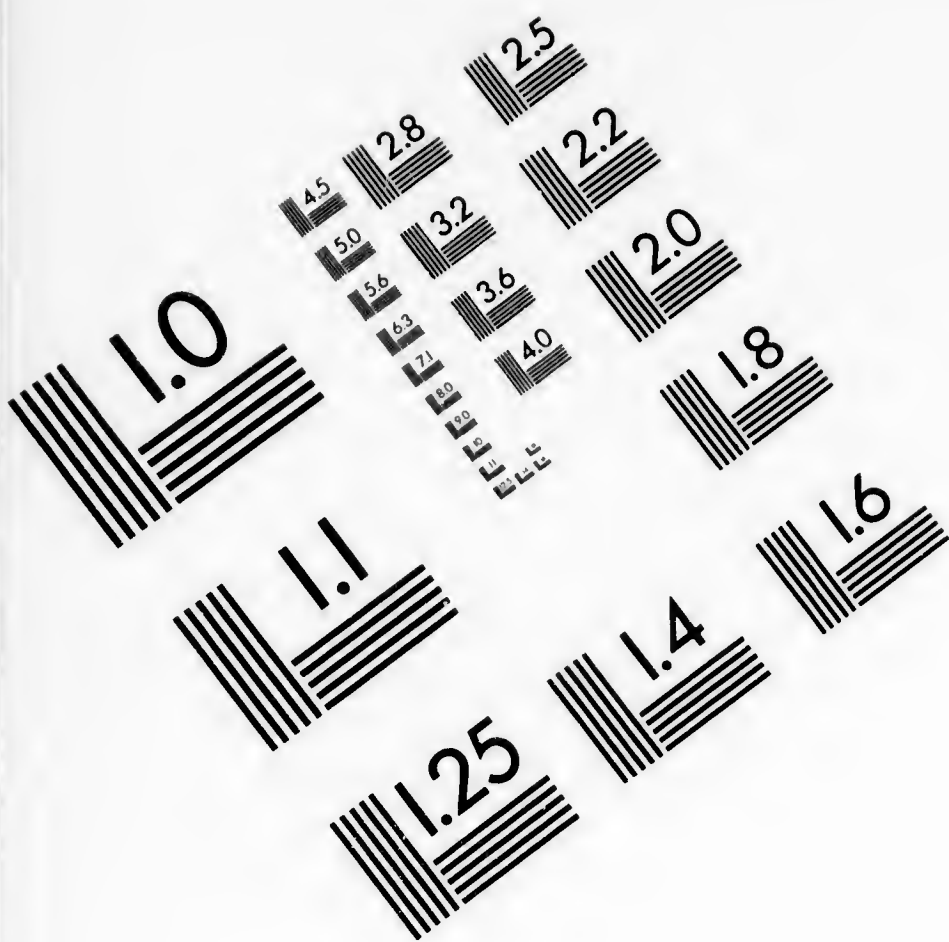
**Microfilmed By:**

**Challenge Industries  
402 E.State St  
P.O. Box 599  
Ithaca NY 14851-0599**

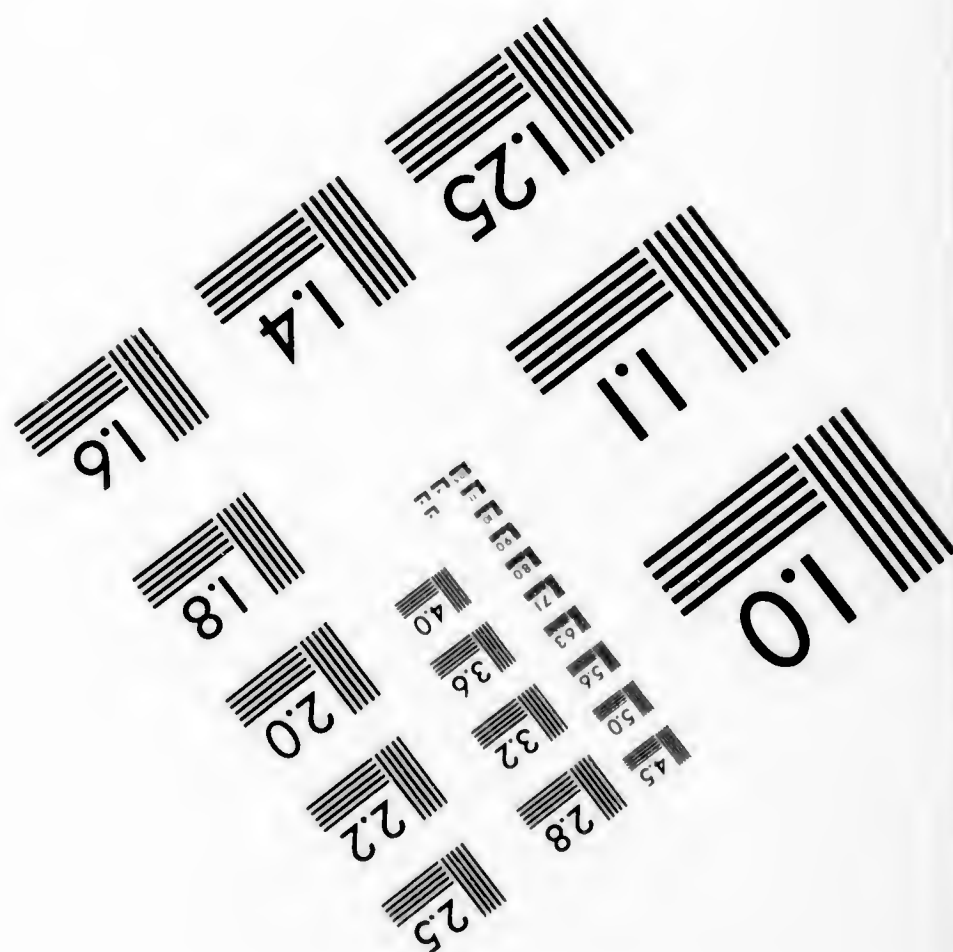
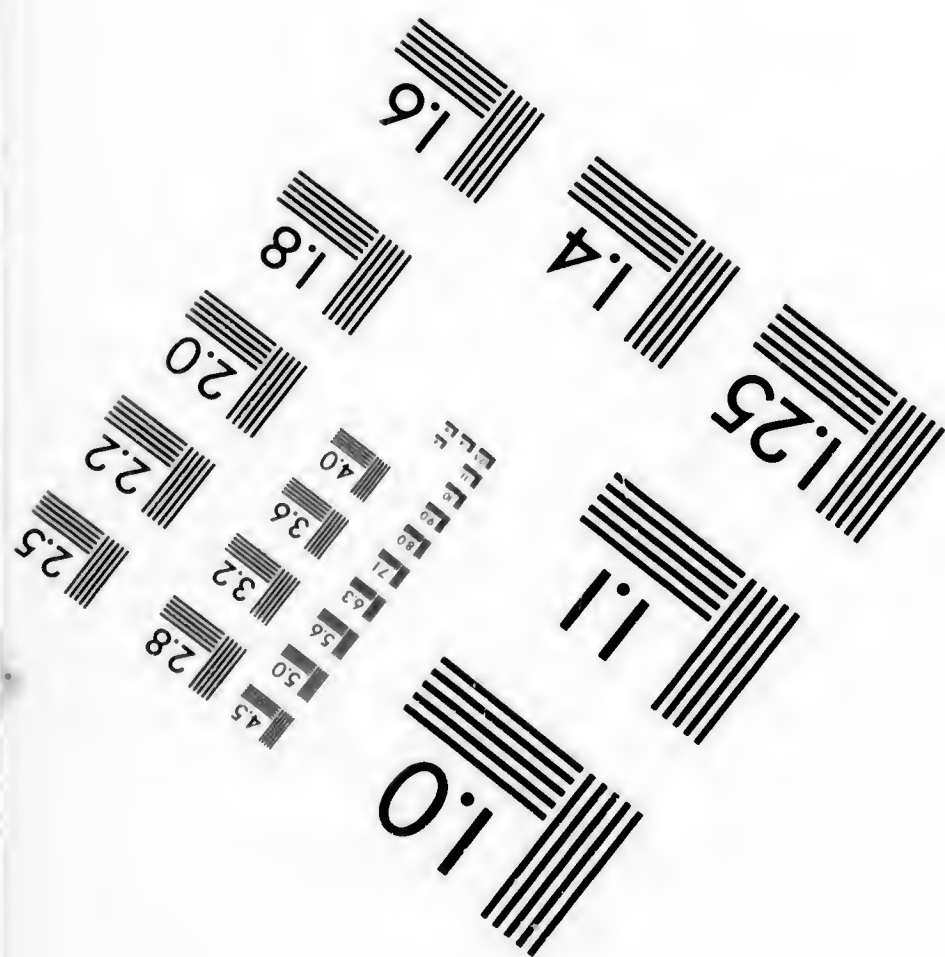
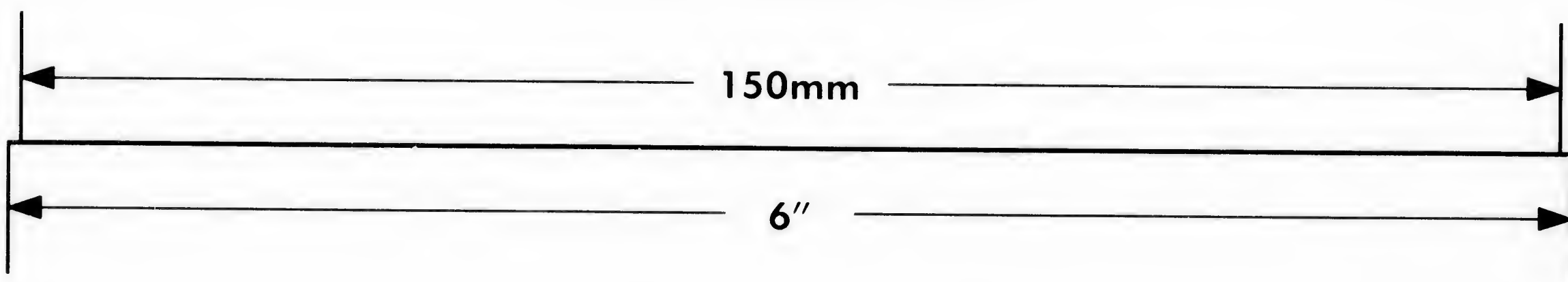
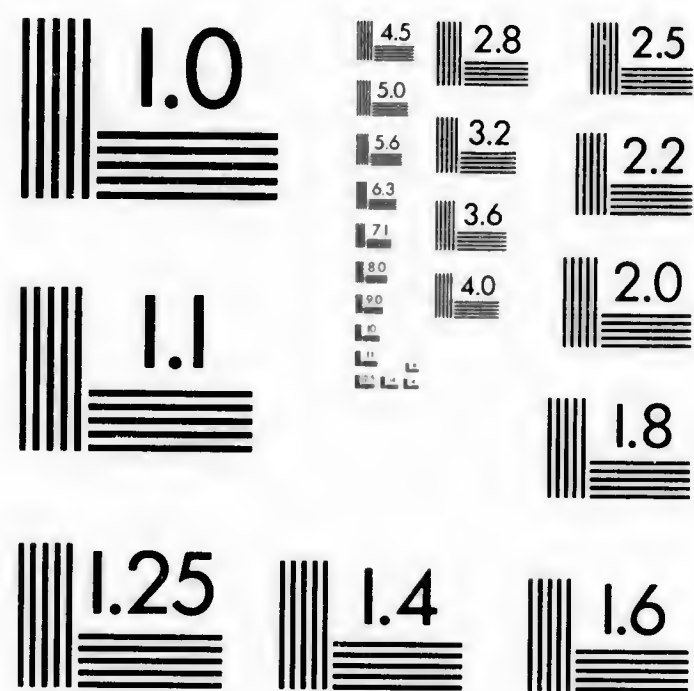
**phone (607)272-8990**

**fax (607)277-7865**

**[www.lightlink.com/challind/micro1.htm](http://www.lightlink.com/challind/micro1.htm)**



# IMAGE EVALUATION TEST TARGET QA-3



APPLIED IMAGE, Inc  
1653 East Main Street  
Rochester, NY 14609 USA  
Phone: 716/482-0300  
Fax: 716/288-5989



The Pennsylvania State College

The Graduate School

Department of Home Economics

A STUDY OF THE INFLUENCE OF COLOR ON THE  
PRESCHOOL CHILD'S SELECTION OF CERTAIN COOKED VEGETABLES  
DURING THE NOON LUNCH PROGRAM  
AT THE PENNSYLVANIA STATE COLLEGE NURSERY SCHOOL

A Thesis

by

Margaret G. Hartson

Submitted in partial fulfillment of the  
requirements for the degree of  
MASTER OF SCIENCE

August 1946

Approved:

July 29, 1946

Winona L. Morgan  
Associate Professor of Home Economics

Approved:

July 29, 1946

Ruth E. Graham  
Acting Head of the Department

THE PENNSYLVANIA STATE COLLEGE

#### ACKNOWLEDGMENT

The author wishes to express her appreciation and gratitude to Dr. Winona Morgan for her encouragement and guidance in planning and carrying out this study. She also wishes to acknowledge her indebtedness to all the members of the Nursery School Staff for their interest and assistance in recording the data during the lunch program.



## TABLE OF CONTENTS

CHAPTER		Page
I	Statement of the Problem . . . . .	1
II	Review of the Literature . . . . .	4
III	Procedure Used in This Study. . . . .	9
	Subjects . . . . .	9
	Procedure for Collecting Data. . . . .	11
	Criteria for the Selection of Vegetables . .	13
	Other Information Obtained . . . . .	15
IV	Results of the Study . . . . .	17
	Vegetables . . . . .	17
	Color. . . . .	19
	Sex Differences. . . . .	22
	Consistency of Selection . . . . .	26
	Parents Check-List . . . . .	27
	Comments Made by Subjects. . . . .	31
	Discussion of Results. . . . .	33
	Recommendations for Further Study. . . . .	36
V	Summary and Conclusions. . . . .	38
	BIBLIOGRAPHY. . . . .	40
	APPENDIX. . . . .	43

## CHAPTER I

### STATEMENT OF THE PROBLEM

Many texts dealing with the development of preschool children mention the value of color in stimulating the child's appetite, and as an aid in fostering good food and eating habits. In its nationwide advertisements, one large food concern has stressed the value of color in making a difference in the appeal of foods being served.

While these statements may seem to be true, from common observation, the author wished to seek further information concerning the influence of color on the child's selection of foods, or the way in which a group of young children might indicate a preference for colored food, when given an opportunity to choose from certain foods paired according to color.

Since vegetables offer the main source of color in the menu, it seemed logical to focus attention upon this source of color as an area for this investigation.

The outstanding difficulties evident in investigating this problem seemed to be:

1. The impossibility of separating flavor and color in the practical situation.
2. The wide range in flavor and texture of the vegetables used. There was no standard of texture and flavor which could be used for all vegetables or colors in a natural situation.



3. To obtain a sufficient number of choices for each subject to lessen the possibility of chance selection.

In order to have had a standard of flavor and texture, mashed potatoes might have been tinted the various colors to be used in the experiment; however, it was felt that the findings from such an experiment or study would not have any practical application in the normal nursery school situation.

In spite of these difficulties, a study was undertaken at The Pennsylvania State College to attempt to answer the following questions.

1. Does the preschool child indicate a preference for colored vegetables, as compared to white vegetables?
2. Does the preschool child indicate a preference for certain colored vegetables as compared with other colored vegetables?
3. Is the preschool child influenced by color preference as well as by preference for certain vegetables in making a selection from vegetables paired according to color?

It was assumed that all the children in the experimental group were able to see and distinguish colors. Perhaps in this case, where 13 boys were involved, such an assumption was unwarranted, but it did not seem practical to attempt a detailed test of color vision. However, to have been thoroughly scientific, all subjects should have been tested for color vision, and those subjects who did not distinguish color eliminated from the study.

It was also assumed that the child's choice would indicate his preference.

Numerous studies have been made of the age at which very young children notice color, and also the color preferences shown at the different age levels. The vegetable preferences of preschool children, also, have been listed as findings in various studies. Because of the many statements found in literature that color is important in the child's menu, the author thought it would be interesting to investigate the possibility of a relationship between color and vegetable preference among preschool children.



## CHAPTER II

### REVIEW OF THE LITERATURE

Studies of the preschool child's ability to observe and discern colors have been numerous. In a study of color and form perception at various ages, Brian and Goodenough (2:212) found that, "At about the age of three, a preference for color begins to manifest itself. Color is matched in preference to form by each half-year age-group between the ages of three and six years." Staples (15), in a study of the responses of infants to color, found the preferences of preschool children to be red, green, and blue, in that order, with small differences between the colors. Yellow was the least preferred color. The only sex differences found among the preschool group by Staples was a higher rating of green by boys than girls, and a lower rating of yellow by girls than boys. In the same study, infants between 6 and 24 months responded to the stimulus of the colors in the order of red, yellow, blue, and lastly, green. It was found also that girls showed a greater responsiveness to color, especially in the case of blue and green, and that girls also showed a slightly more mature color preference than did boys.

Strang (16:178) states, "Children as young as three years can be taught to give the names of colors. They usually acquire this ability incidentally by five years of age. . . . Of the three primary colors yellow is liked by infants but loses its initial popularity as the children grow older. Red is the favorite color and blue is increasingly preferred by the older children. A few



children, as early as the fourth year, show sensitivity to color harmony. At all ages girls show a higher sensitivity to color than boys. Great variability from these central tendencies is found among children of nursery school age."

That color has a desirable place in the menu or meal is mentioned or referred to by many authors in texts or articles dealing with child development, in the sections on food and eating habits. The following are a few examples of the many such statements.

"Color adds joy to living whether on the banks of the Wabash or in the school lunchroom. Young people react favorably to color in food and tend to select colorful plate lunches. . . . We believe that color is just as necessary in the cafeteria as it is in the art department." Buchanan (4:158).

"In the nursery school the teaching situation obviously includes attractive, nutritionally adequate, well-cooked, and well served meals. The attractiveness is only slightly less important than the nutritional adequacy as it determines the enjoyment with which the food is eaten." Landreth (8:78).

"Appetite is also affected by the way the food is cooked and served. Children, like adults, prefer food which is well cooked, colorful, and attractively arranged." Backus, Brough, and Needham (1:7).

"Use colorful foods for children's meals. They are more appetizing even for a small child." Lowenberg (10:7).

"A well balanced meal has a nice variety of texture, flavor and color. . . . Yellow is apparently a popular color with children, for they frequently remark about yellow and orange in their food." Lowenberg (9:7-8).

" . . . you are aware of the beneficial effects of a plate of chicken, spinach and beets in contrast to one of chicken, cauliflower and creamed onions." Smart and Smart (14:41).

"There are a number of factors to be considered in establishing the right attitude of a child toward his food. The esthetic appeal of the food itself has a marked effect upon appetite. Most persons realize that the sight, taste and smell of the food served makes a direct appeal to the senses. Meals planned to offer some contrast of color, flavor, and texture probably attract children as they do adults. Careful preparation and attractive service are highly desirable." Rand, Sweeny, and Vincent (13:185).

"Children are interested in the appearance as well as in the taste and feeling of their food. Yellow seems to be their favorite color for food, but any brightly colored food will add to the palatability of an otherwise uninteresting menu." (In reference to food dislikes.) "Sometimes the child objects to the appearance of the food; it is too dark colored or all the food on the plate is white or uninteresting in color." Foster and Mattson (6: 137, 154).

All such statements suggest the valuable results of the use of colorful foods in the child's menu. Some state that children prefer colorful foods; however, few scientific studies were found



to confirm or deny this.

Sweeny (17), reporting a series of studies of the factors contributing to the success of the feeding program at the Merrill-Palmer School, told that those dealing daily with the children felt that the presence of color and the attractiveness of service had great influence on the children's attitude toward all food. Records were kept at the nursery schools for four hundred school days, of various details of the lunch program such as the amount of food served in each menu, the number of children eating all their food, the kind of food chosen, and the amount and kind of food returned. From these records they were able to study the reactions of the children to the various foods, as well as the effect of introducing color into the menu. From these records it was indicated that, "... the recognition of the pleasing qualities of food is not limited to the adult palate but that even a child of only a few years has the ability to recognize, appreciate and enjoy really good, appetizing food."

Sweeny (17:307). To verify some of their observations in regard to the effect of color, flavor, and consistency in food upon the group, another study was made. In this study, which covered a period of ninety school days, the children mentioned color in 95 per cent of their references to the foods which were served.

As to preferences for certain vegetables, in a study by Cook (5), to discover the patterns of preschool children's eating and the attitudes toward various types of food, tomatoes were chosen 68 per

cent of the times offered, peas were chosen 60 per cent, carrots 74 per cent, beets 44 per cent, and cauliflower was selected 42 per cent of the times offered. Vegetables as a whole, not including potatoes, were selected first at 20 per cent of the 83 meals observed during the study.

An application in the commercial field of the importance of the color of food was reported in an article by Podolsky (12), in which he tells of an experiment at a dinner where the foods served were of strange and unnatural colors. Though the food and cooking were of the best, the special filter lamps used in the experiment made the foods appear in distorted colors, with the result that the guests lost their appetites and could not eat, or became ill from trying to eat the weirdly tinted food. He points out the values of contrast and variety of natural colors in the meal as an aid to making the food taste better, and that appreciation of food is largely dependent upon the color of the food and its surroundings as much as upon the texture and flavor of the food served.

In general, the literature points out that young children are aware of color, and show a preference for red at the later pre-school level. Sex differences were indicated to the effect that girls showed a greater awareness of color and more mature color preferences than boys. Two authors state that yellow is a favorite color for food among young children, but all authors stress the importance of the use of natural colored foods in the menu of the young child.



### CHAPTER III

#### PROCEDURE IN THIS STUDY

The present study was conducted during the fall and spring semesters, 1945-46, at The Pennsylvania State College Nursery School. Records were obtained during the noon lunch period from November 12, 1945 to March 27, 1946. Because of absences and late enrollment of some of the subjects, complete records were not obtained for all children involved in the study.

#### Subjects

The subjects participating in the study were 26 children enrolled in The Pennsylvania State College Nursery School during the fall and spring semesters, 1945-46. Fifty per cent or 13 of the subjects were boys with an age range of 29 to 47 months. The age range for the 13 girls was 31 to 45 months. The age range for the group as a whole was 29 to 47 months, with a mean age of 40 months and a standard deviation of 5.5 months.

Classification of the socioeconomic status of the subjects was based on the father's occupation according to The Minnesota Occupational Classification as recorded by Goodenough and Anderson (7:501). The subjects came preponderately from the higher occupational levels; 61.54 per cent from the professional classes or Group I, and none from the lowest occupational groups. This distribution is shown in Table I.



TABLE I

## Classification of Subjects According to Paternal Occupation

Minnesota Occupational Classification	Paternal Occupation	No. of Parents in Group	Total in each Group	Per Cent of Group
Group I	College Professors	11		
	High School Teacher	1		
	Engineer	1		
	Editor	1		
	Physician	1		
	Clergyman	1		
			16	61.54
Group II	College Employees	3		
			3	11.54
Group III	Merchants	3		
	Salesmen	2		
			5	19.23
Group V	Cook	1		
	Guard	1		
			2	7.69
Total		26	26	100.00

No attempt was made to select or pair the subjects. All children enrolled in the morning session for the period indicated were used as subjects in the study. Though intelligence tests had not been given to all the children, the group as a whole was a selected one, above average in intelligence.

Twenty-one of the subjects were in attendance in the nursery school previous to the beginning of the study and were familiar with the lunch program. Five were enrolled while the study was in progress, and their records, though incomplete, were incorporated with those of the rest of the group. All of those who enrolled late adjusted quickly to the lunch program, and none of the subjects involved in the study was considered an eating problem.

#### Procedure for Collecting Data

Observations were made during the noon meal at the nursery school, and menus were planned so as to offer each child a choice of one of two vegetables paired according to color. Lunches were served at five tables which were set up to seat four children and two adults. The adult in charge of each table was a member of the staff of the nursery school or an advanced student in the department. Recordings were made by these staff members or advanced students who were trained in this procedure. Frequently a student was asked to occupy the second adult place at the table to assist as needed during the meal. The staff member or adult in charge of each table recorded the choice of vegetable and any remarks made by each child concerning the vegetables and/or colors.

Recorders were given instructions for the recording of data, and all made satisfactory recordings of observations during a one-week trial period at the beginning of the study.



The tray of vegetables was passed to each child by an assistant who was trained in the techniques of this duty, and who successfully followed the procedure during the trial period. Except for a few occasions when this responsibility was assumed by the author, the same assistant continued in this capacity throughout the study.

The assistant passing the vegetables and the recorders at each table were given instructions as follows:

1. Do not mention color of the vegetable or any objects before or during the time the tray of vegetables is being passed to the children.
2. Make no indications as to which selection the child should make.
3. If the child asks, "What is that?", answer simply, "It is \_\_\_\_.", naming the vegetable.
4. If the child asks questions concerning the vegetable, the assistant or recorder should answer the question correctly and as simply as possible.
5. Adults at the table are not to instigate any discussion of color, but should participate in a natural way during any such discussion begun by the children. This should be recorded on the table record form indicating those statements made by the adult and each child participating in the discussion.

If a child refused to make a choice, the adult at the table took a serving of a vegetable from the tray for the child, in which case this was noted on the table record form (see appendix). In tabulating the data, the few such cases which occurred were discarded.

Small servings of a standard size of one tablespoonful of the vegetables were used throughout the study. The experimental vegetables

were served in small, individual, clear Pyrex glass dishes arranged alternately in two rows on a small oblong tray, the bottom of which was covered with plain white paper. This tray, on which there were 8 servings of the vegetables (4 of each color), was placed on the table to the left of each child while the selection was made. Servings of the vegetables were then replaced on the tray before it was taken to another table. To avoid any influence on the child's choice, a large dish of one of the vegetables for the adults was placed on the table after selections had been made by all the children at that table. Second helpings were given to the children from this supply if they requested, even though the vegetable did not correspond with that of their original choice. Records of the first choice, only, were kept. The other foods in the meal were served, family style, on white plates, by the adult in charge of the table.

Because different eating efficiency scores for different days of the week were found in a study by Morse and Chittenden (11:277), menus were planned so that the same combination of vegetables was not offered for a second time on the same day of the week.

#### Criteria for the Selection of Vegetables To Be Used

The colors selected for use in the study were red, green, yellow, and white. Two vegetables representing each color were then selected on the basis of the following:

1. Only those vegetables of the desired natural color were used.



2. Those vegetables which were commonly served in the home as well as in the nursery school were used.
3. Only those vegetables which were suitable in the young child's diet were considered.
4. Vegetables which were mild in flavor were used in preference to strong flavored vegetables.

Those vegetables selected to represent each color on these bases were as follows:

- red - beets and tomatoes
- green - peas and green string beans
- yellow - carrots and sweet potatoes
- white - cauliflower and celery.

Beets and tomatoes were obtained in the canned form, peas and beans in the frozen form, and carrots, sweet potatoes, cauliflower and celery in the fresh form. Except for the canned vegetables which were heated and seasoned, all were plain-cooked a minimum length of time, lightly salted and buttered for serving. No chemicals were used to brighten or change the natural color.

One of the main difficulties was the selection of a second yellow vegetable in addition to carrots, that would meet the requirements. Sweet potatoes, though not as common as the other vegetables in the study, were used in preference to squash or rutabagas because it was felt they were more common in the child's diet than either of these. Corn, which is not considered a suitable food for the pre-school child, was not used for this reason.



Celery, which is not served as frequently in the cooked as in the raw form, was used in preference to onions or turnips because of the strong flavor and indigestibility of these latter.

Each vegetable was paired with each other vegetable of another color, making a possible 24 combinations. Each combination was offered at two different times, making a total of 48 possible selections for each subject. However, due to absences and late enrollment of some of the subjects, not all completed the 48 selections. Complete records of the 48 combinations were obtained for 13 of the subjects, 7 girls and 6 boys.

#### Other Information Obtained as Part of the Study

At the beginning of the study a questionnaire was sent to the parents of each subject requesting information concerning:

1. The child's individual likes and dislikes of the vegetables to be used in the study.
2. Information concerning the child's color preferences, if any, of which the parents were aware.

These questionnaires or check lists were obtained for twenty of the subjects involved in the study. The results were tabulated and may be found, in table form, in the chapter concerned with the discussion of the results.

After the part of the study involving the choice of vegetables was completed, an attempt was made to test the child's selection of these same colors in another test. Small bean bags of the colors

involved in the study were paired in the same way as the vegetables, and the child was asked to select one for use in a simple game which was played. Though each child was tested individually, the children as a whole became excited with the game and appeared to be grabbing any bean bag rather than selecting for color. Because of this, the author felt this was not a valid test and it was discontinued. Due to lack of time, no other measure of color selection was attempted.



## CHAPTER IV

### RESULTS OF THE STUDY

The procedure of offering the child his choice of vegetables at the noon meal had several notable effects, one of which was the interest in this process and eager acceptance of this food shown by the children. In many cases when the tray of vegetables was offered at a table before the plate with the rest of the lunch had been served, the children started eating the vegetable they had chosen and often had finished eating this when their plate was served to them. One group of children who sat together at the lunch table quite regularly had a game of repeating in turn several times a statement of what they had chosen, often including statements of the choices of the other children at the table. The group as a whole was keenly interested in the process of selecting a vegetable. Several made comments indicating disappointment in not having a choice the first day after the completion of this procedure, when the vegetable was served again on the plate with the other food.

#### Vegetables

When the records of all the choices of vegetables were tabulated, there was a total of 1025 choices made during the study. Of these 472 or 46.05 per cent were made by boys, and 553 or 53.95 per cent were made by girls. Because the number of times offered varied for each vegetable the score for each one of the vegetables was figured



as the percentage of the total times offered that the vegetable was selected or chosen. These percentages are shown in Table II.

TABLE II  
Percentage of Total Choice of Each Vegetable

Vegetable	Total Times Offered	Total Times Chosen	% Times Chosen
Beets	268	186	69.40
Tomatoes	252	114	45.24
Peas	242	156	64.46
Beans	273	172	63.00
Carrots	258	131	50.77
Sweet Potatoes	251	97	38.64
Cauliflower	259	88	33.98
Celery	247	81	32.79
Total	2050	1025	

Beets were chosen most frequently or 69.40 per cent of the times offered. Second in preference were peas which were chosen 64.46 per cent of the times offered, followed in order by beans, carrots, tomatoes, sweet potatoes, cauliflower, and celery which

ranked lowest in preference, being selected only 32.79 per cent of the times offered. Cook (5) found tomatoes, which were universally liked by most of the subjects in her study, to be selected 68 per cent and carrots 74 per cent of the times that they were offered. Beets were selected 44 per cent of the times offered. In contrast to these findings, the results of the present study found carrots ranking fourth in preference and tomatoes fifth in per cent of selection with beets ranking first.

The percentage of selection of each vegetable as compared with each other vegetable with which it was paired is shown in Table III. For example, when beets were paired with cauliflower they were selected 80 per cent and cauliflower 20 per cent of the times they were offered together. (Complete tables of the percentage of selection of each vegetable when paired with each other vegetable may be found in the appendix.)

As will be noted in Table III, peas and beans were chosen a larger percentage of times over every other vegetable with which they were paired with the exception of beets. Cauliflower had a higher percentage of selection only when paired with sweet potatoes, and celery was chosen more frequently only when paired with tomatoes and sweet potatoes in that order.

### Color

The percentage of selection for each color was computed by



TABLE III

Percentage of Choice of Each Vegetable compared with Each Other Vegetable

	Cauliflower	Celery	Sweet Potatoes	Carrots	Beans	Peas
Beets	20.00 80.00	29.27 70.73	24.39 75.61	28.57 71.43	32.65 67.35	48.84 51.16
Tomatoes	41.67 58.33	52.63 47.37	42.55 57.45	59.52 40.48	66.67 33.33	74.29 25.71
Peas	31.71 68.29	20.94 79.06	38.10 61.90	44.74 55.26		
Beans	27.08 72.92	18.61 81.39	40.48 59.52	32.65 67.35		
Carrots	25.64 74.36	26.83 73.17				
Sweet Potatoes	60.53 39.47	51.22 48.78				



combining the scores of the two vegetables representing each color and figuring the percentage which the total times selected was of the total times offered for the two vegetables. These percentages of the total choice of each color are shown in Table IV.

TABLE IV  
Percentage of Total Choice of Each Color

Color	Total Times Offered	Total Times Chosen	% Times Chosen
Red	520	300	57.69
Green	515	328	63.68
Yellow	509	228	44.79
White	506	169	33.39
Total	2050	1025	

Statements by Foster and Mattson (6:137) and Lowenberg (9:8) to the effect that yellow is children's favorite color in food were not substantiated by the findings of this study. Yellow or yellow vegetables ranked third in popularity, being chosen 44.79 per cent of the times offered. Green ranked first with 63.68 percentage of choice and red was second with 57.69 percentage of choice. White was fourth and last in rank, being chosen only 33.39 per cent of the times offered. When paired with each other color yellow was

chosen a greater number of times or 59.12 per cent only when offered with white. The percentages of choice of each color as compared with each other color are shown in Table V.

TABLE V

Percentage of Choice of Each Color Compared With Each Other Color

	White	Yellow	Green
Red	35.47 64.53	37.99 62.01	53.85 46.15
Green	24.58 75.42	38.60 61.40	
Yellow	40.88 59.12		

#### Sex Differences

When the results of the vegetable selections were classified according to sex some differences appeared which, though not large, are interesting to note. As may be seen in Table VI, the percentage of choice of vegetables by boys ranked the vegetables in the following order of preference: beets, beans, peas, carrots, tomatoes, cauliflower, sweet potatoes, and celery. Choices by the girls, Table VII, ranked these vegetables in the order of peas, beets, beans, carrots, tomatoes, sweet potatoes, celery, and cauliflower. When the Critical Ratio of the Standard Error of the Differences in the percentage selection of each vegetable by boys and girls was computed according



TABLE VI

Percentage Choice of Each Vegetable by Boys

Vegetable	Times Offered to Boys	Times Chosen by Boys	% Times Chosen by Boys
Beets	122	84	68.85
Tomatoes	119	59	49.58
Peas	109	63	57.80
Beans	130	77	59.23
Carrots	118	63	53.39
Sweet Potatoes	115	42	36.52
Cauliflower	115	44	38.26
Celery	116	40	34.48
Total	944	472	

TABLE VII

Percentage Choice of Each Vegetable by Girls

Vegetable	Times Offered to Girls	Times Chosen by Girls	% Times Chosen by Girls
Beets	146	102	69.86
Tomatoes	133	55	41.35
Peas	133	93	69.92
Beans	143	95	66.43
Carrots	140	68	48.57
Sweet Potatoes	136	55	40.44
Cauliflower	144	44	30.55
Celery	131	41	31.30
Total	1106	553	



to the formulas included in Brown (3:435) none of the differences was found to be statistically significant. The greatest sex differences were found in the percentage of selection of peas, tomatoes, cauliflower, and beans. These percentages and the critical ratios of the standard error of the differences are shown in Table VIII.

TABLE VIII

Statistical Significance of the Sex Differences in Vegetable Choices

Vegetable	% Times Chosen by Boys	% Times Chosen by Girls	Differences	SE	CR	Probability
Beets	68.85	69.86	1.01	5.61	.18	
Tomatoes	49.58	41.35	8.23	6.26	1.31	19.4
Peas	57.80	69.92	12.12	6.18	1.96	4.6
Beans	59.23	66.43	7.20	5.85	1.23	23.0
Carrots	53.39	48.57	4.82	6.24	.77	
Sweet Potatoes	36.52	40.44	3.92	6.15	.64	
Cauliflower	38.26	30.55	7.71	5.94	1.26	19.4
Celery	34.48	31.30	3.18	5.99	.53	

Results of the percentage of color selection by boys and girls treated in the same manner showed greater differences, though only one of these differences was found to be truly significant statistically. These data are shown in Tables IX and X.

TABLE IX

Percentage Choice of Each Color by Boys

Color	Times Offered to Boys	Times Chosen by Boys	% Times Chosen by Boys
Red	241	143	59.34
Green	239	140	58.58
Yellow	233	105	45.06
White	231	84	36.36
Total	944	472	

TABLE X

Percentage Choice of Each Color by Girls

Color	Times Offered to Girls	Times Chosen by Girls	% Times Chosen by Girls
Red	279	157	56.27
Green	276	188	68.12
Yellow	276	123	44.57
White	275	85	30.91
Total	1106	553	



As will be noted in Table XI, the girls chose green 9.54 per cent more often than did boys. When tested statistically this difference showed that there are only 2.8 chances in 100 that this does not represent a true difference. The difference of 5.45 in the percentage of white chosen by boys over girls when tested statistically showed that there are 19.4 chances in 100 that this difference is not a true one.

TABLE XI

Statistical Significance of the Sex Differences in Color Choices

Color	% Times Chosen by Boys	% Times Chosen by Girls	Differences	SE	CR	Probability
Red	59.34	56.27	3.07	4.34	.71	
Green	58.58	68.12	9.54	4.25	2.24	2.8
Yellow	45.06	44.57	.49	4.42	.11	
White	36.36	30.91	5.45	4.23	1.29	19.4

#### Consistency of Selection

Complete records of choices in the 24 vegetable combinations were obtained for 13 of the subjects in the study. Upon examination, these complete records showed a 75.6 per cent consistency of vegetable selection by these subjects as a whole. When the percentage of consistency of vegetable selection was figured using the records of all

subjects, regardless of the number of selections made, there was a 73.52 per cent consistency for the total group. As may be seen in Table XII, one subject, S.S., made the same selections in 23 of the 24 combinations offered, resulting in a 95.83 per cent consistency in selections of the vegetables. Consistency was indicated when a subject chose the same vegetable in a combination both times that the combination was offered.

In tabulating the data according to percentage of color selection for each of the 13 subjects having complete records, Table XIII, the per cent selection of each color by the individual was interpreted also as an indication of per cent consistency in choice of each color. For example, Subject S.S. chose the green vegetables every time they were offered, and therefore was 100 per cent consistent in her choice of green. The percentages for this group as a whole followed the same general pattern of the per cent selection of each color by the total group including all subjects, regardless of the number selections made, as was shown in Table IV on page 21.

#### Parents Check-List

From the results of the parent's check-list of the child's likes and dislikes of the vegetables involved in the study it was indicated by the parents that some of the vegetables being used were refused in 20 cases and never served in 8 cases, as shown in Table XIV. In the nursery school situation there were no cases where a



TABLE XII

Percentage Consistency of Vegetable Selection by Individuals  
Completing All Choices

Child	Number Choices Same Vegetable	Number Choices Different	% Consistency
AA	15	9	62.5
TG	20	4	83.3
BH	17	7	70.8
BK	19	5	79.2
EMc	18	6	75
KP	15	9	62.5
CP	19	5	79.2
AR	16	8	66.7
PR	19	5	79.2
SS	23	1	95.8
CU	20	4	83.3
SW	19	5	79.2
AZ	16	8	66.7
Total	236	76	75.64

TABLE XIII

Percentage of Selection of Each Color by Individuals  
Completing all Choices

Child	Red*		Green		Yellow		White	
	Total Times Chosen	% Times Chosen	Total Times Chosen	% Times Chosen	Total Times Chosen	% Times Chosen	Total Times Chosen	% Times Chosen
AA	19	79.2	13	34.2	12	50	4	16.7
TG	20	83.3	12	50	12	50	4	16.7
BH	10	41.7	15	62.5	11	45.8	12	50
BK	18	75	16	66.7	10	41.7	4	16.7
BMc	12	50	14	58.3	17	70.8	5	20.8
KP	14	58.3	20	83.3	7	29.2	7	29.2
CP	21	87.5	15	62.5	9	37.5	3	12.5
AR	13	54.2	15	62.5	8	33.3	12	50
PR	13	54.2	13	54.2	15	62.5	7	29.2
SS	7	29.2	24	100	8	33.3	9	37.5
CU	15	62.5	19	79.2	7	29.2	7	29.2
SW	11	45.8	18	75	18	75	1	4.2
AZ	13	54.2	18	75	10	41.7	7	29.2
Total	186	59.61	212	67.94	144	46.15	82	26.28

\* Each color was offered 24 times to each subject - a total of 312 times to the group as a whole.



TABLE XIV

Results of Parents Check List of Child's Preference for Vegetable

Vegetable	Refuses		Indifferent to or dislikes but eats		Likes or very fond of - eats		Never served	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Beet	1	1	3	2	6	7	0	0
Carrots	1	1	1	4	8	5	0	0
Cauliflower	5	1	4	5	1	3	0	1
Celery	0	1	2	1	6	7	2	1
Green Beans	1	1	2	4	7	5	0	0
Sweet Potatoes	3	2	4	3	2	3	1	2
Tomatoes	0	1	1	4	8	5	1	0
Total	12	8	20	26	44	42	4	4

child refused to eat at least a small amount of the vegetable he had chosen.

### Comments Made by Subjects

There was a total of 439 comments or remarks made by the subjects concerning the vegetables and/or color recorded by the adults in charge of the lunch tables. Classification of these showed that there were 257 or 58.54 per cent recorded for girls and 182 or 41.46 per cent for the boys. Of the total number of remarks or comments 29 or 6.61 per cent were in direct reference to color. The girls contributed 20 or 68.97 per cent of these comments concerning color. One girl made 5 of these comments, 2 girls made 3 each, 2 made 2 each and 5 made one remark each in direct reference to color. The 9 comments recorded for the boys were made by 4 individuals, one boy made 5 of these, one made 2 comments, and 2 boys made one comment each in direct reference to color during the meal. The majority of these remarks were made in reference to the red vegetables, primarily to beets. The following are a few examples which are representative of those made in reference to color during the study:

"I'm taking red. I want some beets. I got a red one."  
(girl, beets- cauliflower)

"You took the red beets and I took the peas." (boy)

"I always take the red ones." (boy, celery- tomatoes)

"I got potatoes and they got red beets." (girl, beets-  
sweet potatoes)

"Pretty glass." (Boy, meaning tray of vegetables, beets-  
carrots)



"I got a red one, I've got a red one. He got a green one." (girl, beans- beets)

"I have red beets." (girl)

"I have beans, I have green beans." (boy)

"I have green beans." (girl)

"I have green beans." (girl, four children at the same table)

"She got white and we got two yellows." (girl, cauliflower-sweet potatoes)

"I like beets. I like the red. I like the sweater you have on to-day." (girl, beets- celery)

"Look what I got. I got a green one." (girl, beans-tomatoes)

"Our bibs are as white as the snow. So is the towel. So are the plates." (girl)

"This is white. Look at the skin, it's red." (boy, apple)

At the end of the meal, "I took tomatoes because they are red and I like red." (girl, sweet potatoes- tomatoes)

Of the 410 remarks or comments not classified as being in direct reference to color, 237 or 57.80 per cent were recorded for girls and 173 or 42.20 per cent for boys. Except for a few cases at the beginning of the study when several of subjects asked what the different vegetables were, all children seemed to be familiar with the vegetables and could call them by name as is indicated by the remarks recorded on the table record form. The following are representative.

"You've got peas and I've got peas and Bill has tomatoes. Isn't that funny?" (girl)

"I got beans. We got beans, don't we?" (boy, beans- sweet potatoes)

"I got sweet potatoes." (girl)

"I got beans. Barbie got potatoes." (girl)

"Beans." (boy, four children at the same table)

"I want peas, too. We've all got peas now, haven't we?"  
(girl, peas- tomatoes)

"I don't have the same, I have potatoes." (girl, beans-  
sweet potatoes)

"I want this one, I got salary." (girl, beets- celery)

When teacher's vegetable came, "That's the same I have."  
(boy, beets- carrots)

### Discussion of Results

The popularity of beets was indicated, in addition to the largest percentage of selection, by the fact that they were the topic of the majority of remarks or comments made by the subjects during the meal, as recorded on the table record slips. That beets were easy to manipulate and required less motor skill in eating might suggest a reason for their popularity, but if this were accepted as a reason, how, then, might one explain the popularity of peas which ranked second in percentage of times selected, but are usually considered difficult to eat from the standpoint of motor skill required in the process? This finding that beets were chosen the largest percentage of times in every case is perhaps unfortunate because of the greater nutritional value of every other vegetable used in this study.

Though beets ranked highest in popularity, the other red vegetable (tomatoes) was ranked fifth in preference by the group as a whole. Consequently the combined scores for these two vegetables, giving the score for the color red, ranked the red vegetables second



to green which was first in percentage of selection. The subjects were familiar with the flavor and color of tomatoes in the form of tomato juice and raw tomato wedges, but cooked tomatoes as such were rarely served in the nursery school lunches, and therefore the subjects were less familiar with this vegetable than any of the others used in the study, with the possible exception of sweet potatoes. That tomatoes were preferred less frequently may be due in part, also, to their texture and the fact that, though drained, they were considerably more juicy than any of the other vegetables.

Because they were chosen a larger percentage of the time by boys than girls, the boys' rating of the red vegetables was slightly higher than their rating of green vegetables. The girls rated green vegetables first and considerably higher than they rated red vegetables, which were second in percentage of selection by girls. A noticeable difference occurred in the greater selection of peas by girls than boys, and a significant difference was indicated in the larger selection of green vegetables by girls than boys. The statement by Strang (16:178) that yellow which is liked by infants loses its popularity as children grow older is substantiated in these findings, in that yellow vegetables were chosen a greater number of times only when paired with white vegetables. The smallest difference between the two sexes in preference of color was indicated for the yellow vegetables. A slightly larger difference occurred in the rating of red vegetables by the two sexes, however the smallest difference in the percentage of selection of a single vegetable by boys and girls

occurred in the case of beets.

That girls show a greater awareness of and interest in color than boys (Strang 16:178) is indicated in that a difference at the 3 per cent level of significance occurred in the larger percentage choice of green by girls and a less significant difference in the larger percentage choice of white by boys than girls. That 69 per cent of the 29 remarks in direct reference to color were made by girls is another indication of this greater interest in color by girls. According to Strang (16:167), this difference might be partially explained on the basis of more mature language ability of girls than boys.

The high percentage of consistency shown by the group in the selection of vegetables seems to be some indication that, in general, the choices were based on vegetable preferences. A high percentage of consistency in choice of vegetable could occur without resulting in high percentages of consistency in color selection.

Because of the evidence herein presented that both boys and girls are aware of color in their food and indicate a preference for colored vegetables, parents may find it helpful in planning menus which will be acceptable by the young child, to include brightly colored vegetables or foods. The policy of offering the child a choice of food or vegetables when possible seems to be valuable in helping the child to accept this food.



In the nursery school lunch program it has been indicated that children in a group show a preference for colorful foods and indicate awareness of color in the menu. It was apparent, also, that they responded favorably to an opportunity to select or choose one of the foods in the menu. Thus it seems practical to suggest that in planning the nursery school lunch procedure it may be helpful to include some brightly colored foods in the menu, and to provide an opportunity for the children to choose one of the foods, such as vegetables, as an aid in the child's acceptance of this food. However, the inadvisability of depending entirely on the child's selection of foods for nutritional value seems apparent from the finding that children in this study chose beets in preference to vegetables of greater nutritional value.

People in the commercial food service fields have been aware of and used to advantage the evidences of adult sex differences in the interest in color, i.e. that the women are more conscious of color in the food served to them than the men are. That this difference is indicated in very young children is interesting to note.

#### Recommendations for Further Study

1. Further investigation in this area to study the relationships of the child's individual color preferences to his selection of colored foods, using a larger number of subjects who had been tested for color vision and color preference would be interesting and of greater significance.

In such an investigation it would also be interesting to use subjects of two different age levels in order to

compare the findings for the younger and older age groups at the preschool level. It would also seem advisable to equalize the familiarity of the foods in the experiment by using only foods which had been served previously in the nursery school situation.

2. Another study of the young child's selection of foods paired according to color, wherein a food of standard texture and flavor, such as junket, was offered in various colors to larger groups paired according to age and sex, might result in more significant sex and/or age differences being indicated.
3. Since there was some indication that an opportunity to choose fostered greater consumption of all foods, and especially of those which were less readily accepted in the menu, further study as to the amount of increase in food consumption resulting from choice would be valuable.



## CHAPTER V

### SUMMARY AND CONCLUSIONS

An attempt was made at The Pennsylvania State College Nursery School to study the influence of color on the preschool child's selection of certain cooked vegetables during the noon lunch period. The subjects involved in the study were 13 boys and 13 girls enrolled in the nursery school during the fall and spring semesters 1945-46. Two vegetables to represent each of the colors, red, green, yellow, and white, were used in the experiment. Lunch menus were planned so as to offer each child a choice of one of two vegetables paired according to color. Each vegetable was paired with every other vegetable of a different color and was offered at two different times during the study, making a total of 48 combinations. A total of 1025 choices were made during the experiment, and scores for the vegetables and colors were figured on the basis of the percentage of the times offered that the vegetable or color was chosen. Records were kept of the individual choices for each child and remarks made during the meal in reference to the vegetables or colors. Tabulation of the results indicated the rank order of selection of the vegetables to be beets, peas, beans, carrots, tomatoes, sweet potatoes, cauliflower, and celery. When the results of the two similarly colored vegetables were combined to get the scores for the colors, the rank order of selection of the colors was green, red, yellow, and white. In every case, with the exception of two, the colored vegetables were selected

a larger percentage of the times offered, by the group as a whole, than were the white vegetables.

Differences between the sexes in the order of selection of the vegetables as well as of the color, indicated a greater awareness of and interest in color by girls than boys. That 69 per cent of the remarks or comments in reference to color were made by girls, is a further indication of this difference between the sexes.

In conclusion it can be stated on the basis of the findings in this study that:

1. When given an opportunity to choose from certain vegetables paired according to color, the preschool child indicates a preference for colored vegetables over white vegetables.
2. The preschool child indicates a preference for certain green and red colored vegetables, namely, peas, green beans and beets, when selecting from vegetables paired according to color.
3. The high per cent consistency in selection of vegetables by the subjects in this study seem to be some evidence to indicate that these preschool children were making selections based largely on vegetable preferences.
4. There was a small indication that the girls were more aware of color in making a selection than were the boys.



# **BIBLIOGRAPHY**

# BIBLIOGRAPHY

1. Backus, Romona, Brough, Arline and Needham, Irene Bennett, Other People's Children. Elizabeth McCormic Memorial Fund, Chicago, 1943.
2. Brian, Clara R. and Goodenough, Florence L., "The Relative Potency of Color and Form Perception At Various Ages." Offprint from Journal of Experimental Psychology, Vol. 12, pp. 197-213, June, 1929.
3. Brown, Clara M., Evaluation and Investigation in Home Economics. F. S. Crofts and Co., Inc., New York, 1941.
4. Buchanan, Norma L., "Color Spurs Appetites," Practical Home Economics, Vol. 24, pp. 158, 208, March, 1946.
5. Cook, Mertie May, "Eating Patterns of Preschool Children." Unpublished Master's Thesis, University of Chicago, Chicago, 1931.
6. Foster, Josephine C. and Mattson, Marion L., Nursery-School Education. D. Appleton-Century Company, Inc., New York, 1939.
7. Goodenough, Florence L. and Anderson, John E., Experimental Child Study. The Century Company, New York, 1931.
8. Landreth, Catherine, Education of the Young Child. John Wiley and Sons, Inc., New York, 1942.
9. Lowenberg, Mariam E., Food For the Young Child. Collegiate Press, Inc., Ames, Iowa, 1934.
10. \_\_\_\_\_, Food For Young Children in Group Care. Children in War-time, No. 4, Bureau Publication No. 285, U.S. Government Printing Office, Washington, D. C., 1942.
11. Morse, Marjorie Johnson and Chittenden, Gertrude E., "Effect of Size of Initial Food Serving on the Eating Efficiency of a Group of Preschool Children," Journal of Experimental Education, Vol. 11, pp. 268-279, June, 1943.
12. Podolsky, Edward, "How Color Affects the Guest's Appetite," Restaurant Management, Vol. 57, pp. 27, 56, 62, August, 1945.
13. Rand, Winifred, Sweeny, Mary E. and Vincent, E. Lee, Growth and Development of the Young Child. W. B. Saunders Company, Philadelphia, 1936.

LIBRARY  
THE STATE  
COLLEGE



14. Smart, Mollie Stevens, and Russell Cook, It's A Wise Parent. Charles Scribners Sons, New York, 1944.
15. Staples, Ruth, "The Responses of Infants to Color." Offprint from Journal of Experimental Psychology, Vol. 15, pp. 119-141, April, 1932.
16. Strang, Ruth, An Introduction to Child Study. The Macmillan Company, New York, 1938.
17. Sweeny, Mary E., "Some Observations on the Feeding of Young Children," Journal of Home Economics, Vol. 19, pp. 307-312, June, 1927.

**APPENDIX**



**EXHIBIT A**

**PERCENTAGE CHOICE OF EACH VEGETABLE  
WITH EACH OTHER VEGETABLE  
IN COMPLETE TABLE FORM**

Percentage Choice of Beets With  
Each Other Vegetable

Vegetable	Times Offered in Com- bination	Times Chosen	% Times Beets Chosen	% Times Other Vegetable Chosen
Peas	43	22	51.16	48.84
Beans	49	33	67.35	32.65
Carrots	49	35	71.43	28.57
Sweet Potatoes	41	31	75.61	24.39
Celery	41	29	70.73	29.27
Cauliflower	45	36	80.000	20.000
Total	268	186	69.40	30.60

Percentage Choice of Tomatoes With  
Each Other Vegetable

Vegetable	Times Offered in Com- bination	Times Chosen	% Times Tomatoes Chosen	% Times Other Vegetable Chosen
Peas	35	9	25.71	74.29
Beans	42	14	33.33	66.67
Carrots	42	17	40.48	59.52
Sweet Potatoes	47	28	57.45	42.55
Celery	38	18	47.37	52.63
Cauliflower	48	28	58.33	41.67
Total	252	114	45.238	54.762



Percentage Choice of Peas With  
Each Other Vegetable

Vegetable	Times Offered in Com- bination	Times Chosen	% Times Peas Chosen	% Times Other Vegetable Chosen
Beets	43	21	48.84	51.16
Tomatoes	35	26	74.29	25.71
Carrots	38	21	55.26	44.74
Sweet Potatoes	42	26	61.90	38.10
Celery	43	34	79.06	20.94
Cauliflower	41	28	68.29	31.71
Total	242	156	64.46	35.54

Percentage Choice of Beans With  
Each Other Vegetable

Vegetable	Times Offered in Com- bination	Times Chosen	% Times Beans Chosen	% Times Other Vegetable Chosen
Beets	49	16	32.65	67.35
Tomatoes	42	28	66.67	33.33
Carrots	49	33	67.35	32.65
Sweet Potatoes	42	25	59.52	40.48
Celery	43	35	81.39	18.61
Cauliflower	48	35	72.92	27.08
Total	273	172	63.00	37.00

Percentage Choice of Carrots With  
Each Other Vegetable

Vegetable	Times Offered in Com- bination	Times Chosen	% Times Carrots Chosen	% Times Other Vegetable Chosen
Beets	49	14	28.57	71.43
Tomatoes	42	25	59.52	40.48
Peas	38	17	44.74	55.26
Beans	49	16	32.65	67.35
Celery	41	30	73.17	26.83
Cauliflower	39	29	74.36	25.64
Total	258	131	50.77	49.23

Percentage Choice of Sweet Potatoes With  
Each Other Vegetable

Vegetable	Times Offered in Com- bination	Times Chosen	% Times Sweet Potatoes Chosen	% Times Other Vegetable Chosen
Beets	41	10	24.39	75.61
Tomatoes	47	19	42.55	57.45
Peas	42	16	38.10	61.90
Beans	42	17	40.48	59.52
Celery	41	20	48.78	51.22
Cauliflower	38	15	39.47	60.53
Total	251	97	38.64	61.36



Percentage Choice of Celery With  
Each Other Vegetable

Vegetable	Times Offered in Com- bination	Times Chosen	% Times Celery Chosen	% Times Other Vegetable Chosen
Beets	41	12	29.27	70.73
Tomatoes	38	20	52.63	47.37
Peas	43	9	20.94	79.06
Beans	43	8	18.61	81.39
Carrots	41	11	26.83	73.17
Sweet Potatoes	41	21	51.22	48.78
Total	247	81	32.79	67.21

Percentage Choice of Cauliflower With  
Each Other Vegetable

Vegetable	Times Offered in Com- bination	Times Chosen	% Times Cauli- flower Chosen	% Times Other Vegetable Chosen
Beets	45	9	20.00	80.00
Tomatoes	48	20	41.67	58.33
Peas	41	13	31.71	68.29
Beans	48	13	27.08	72.92
Carrots	39	10	25.64	74.36
Sweet Potatoes	38	23	60.53	39.47
Total	259	88	33.98	66.02

**EXHIBIT B**

**RECORD FORMS USED IN THIS STUDY**

- 1. Parents Check-List**
- 2. Table Record Form**
- 3. A Record of Each Child's  
Consistency of Choice**



THE PENNSYLVANIA STATE COLLEGE NURSERY SCHOOL

No. 1

Child \_\_\_\_\_

Date \_\_\_\_\_

List of Vegetables

VEGETABLES	REFUSES	DISLIKES BUT EATS	INDIFFERENT TO -- EATS	LIKES EATS	VERY FOND	NEVER SERVED	COMMENTS
Plain cooked -- buttered							
BEETS							
CARROTS							
CAULIFLOWER							
CELERY							
GREEN BEANS							
PEAS							
SWEET POTATOES							
TOMATOES							

1. Have you noticed any evidence of color preference? Yes \_\_\_\_\_ No \_\_\_\_\_
2. For what objects? (Toys, clothes, etc.) \_\_\_\_\_
3. List preferred colors \_\_\_\_\_

PARENTS CHECK-LIST





A RECORD OF EACH CHILD'S CONSISTENCY OF CHOICE

No. 3

[illegible]

**End of  
Title**